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AGRICULTURAL NEWS LETTER

VOL. 15 - NO. 2 MARCH-APRIL, 1947

This publication contains information regarding new developments of interest to agriculture based on laboratory and field investigations by the du Pont Company. It also contains published reports of investigators at agricultural experiment stations and other institutions as related to the Company's products and other subjects of agricultural interest.

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AGRICULTURAL NEWS LETTER

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CONTENTS

	Page
Cottonseed Treated With "Ceresan" Goes to China	22
New Applications of Weed Killers	23
"Ammate" Eradicates Broomweed	23
"Ammate" Kills Persimmon and Sassafras Sprouts	25
"Ammate" Used Against Oak and Persimmon Brush	25
2,4-D Weed Killer Effective Against Dodder or "Love Vine"	26
Every State In Union Represented Among Stockholders	27
Ways to Improve Efficiency of Apple Pickers	28
DDT Practically Eliminates Flies from Rural Schools	29
Successful Countywide DDT-Spraying Program	30
Cotton Farmer Reports Profits from Use of "Ceresan"	31
"Fermate," Protective Rather Than Curative Fungicide	32
"Fermate" Controls Scab and Cedar Rust of Apples	33
New Insecticide, Mixed With Soil, Controls Potato Wireworms	34
Neoprene Clothing and Equipment for Veterinarians	36
Recommendations for Control of Potato Seed Decay	38
Nitrogen Increases Protein Content of Corn	39
Control of Bacterial Blight of Sugar Beets	40

COTTONSEED TREATED WITH "CERESAN" GOES TO CHINA

Cottonseed produced in Desha County, Arkansas, and treated with "Ceresan" seed disinfectant will be planted in China this year.

Last fall, R. A. Pickens of near McGehee, Ark., sold to UNRRA 400,000 pounds of cottonseed for shipment to China, to serve the dual purpose of furnishing planting seed and of improving the variety grown there.

County Agent Leo D. Wylie reports that Mr. Pickens recently completed one of the most modern seed houses in the south, with equipment to store 750 tons of cottonseed and to delint the seed and treat it with "Ceresan." He installed special machinery to save labor, the entire operation requiring only three men.

Mr. Wylie says that "fans blow air through the seed to keep them cool, to insure proper germination. The seed are brought from the storage room by machinery to the delinting equipment, then through the treating machine, and finally through an automatic sacking, weighing, and sewing machine."

Mr. Pickens grows and gins only one variety of state-certified seed.

EXPERIMENT STATIONS REPORT ON NEW APPLICATIONS OF WEED KILLERS

New information, based on experimental results, including names of additional weeds and plants that can be destroyed by proper applications of new chemical weed killers, is now coming from the various agricultural experiment stations of the country in increasing volume.

Du Pont produces commercial products containing 2,4-D and ammonium sulfamate, both of which have given outstanding results as weed-killing chemicals. The 2,4-D materials (Du Pont 2,4-D Weed Killer in powder form and "Karmex" Weed Killer in tablet form) are being widely used, and new weeds and troublesome shrubs that can be controlled by this selective weed-killing compound are being added to the list from time to time. "Ammate" weed killer, containing ammonium sulfamate as the active ingredient, is also finding new applications as a weed killer where no selective action is required.

A few of the more recent reports of typical newer uses are included on the following pages.

"AMMATE" ERADICATES BROOMWEED IN NATIVE GRASS PASTURES

Two research scientists in West Texas have discovered an excellent way to eliminate the unsightly broomweed that competes with the grass for moisture in many native pastures.

D. L. Jones, superintendent, and R. G. Evans, agronomist, of Texas Branch Experiment Station No. 8 at Lubbock, report that "Ammate" weed killer, the active ingredient of which is ammonium sulfamate, "has proved an effective herbicide in eradicating Gutterizia sp., locally known as perennial broomweed, rosin weed, or turpentine weed."

They point out that the broomweed occupies a large acreage in many of the native grass pastures, especially on farms where the pasture area is small and subject to overgrazing.

Their progress report, issued by the State Agricultural Experiment Station at College Station, says that two years of preliminary trials

Continued on next page

with "Ammate" indicate that "complete eradication of the broomweed was possible." It adds that the third year "a small area was staked off into five plots, each 100 square feet. 'Ammate' was dissolved in water in the following proportions per gallon of water: 1/10 lb., ¼ lb., ½ lb., 1 lb., 1½ lb. The purpose of this test was to ascertain the most economical strength of 'Ammate' that would give complete control of the weed. The plots were sprayed the morning of May 20, just after a fog had lifted. The weeds at this time were approximately 8 inches high. Not more than one-half gallon was required to wet the weeds satisfactorily on each plot."

The results of the test follow:

Strength of "Ammate" Used. Number of Weeds Present, and Per Cent Killed for the Various Concentrations

Plot	Concentration of "Ammate" per gallon of water	Number of weeds present: Before spraying	Number of weeds present: November first	Weeds killed
No.	lb.			%
1	1/10	23	4	83
2	¼	38	1	97
3	½	37	0	100
4	1	32	0	100
5	1½	31	0	100

"Both the 1 lb. and the 1½ lb. rates burned the Buffalo grass near the broomweeds, but with fair rainfall during the summer, no dead grass was present, and the grass had grown over the spots where the broomweeds originally grew," the report continues. "By November 1, no burn of the grass was evident on the plots where the three other strengths were used."

The report continues: "From these results, it is indicated that 'Ammate,' dissolved at the rate of ½ lb. per gallon of water, and applied to the broomweeds with a pressure pump, is the most economical rate of application. If a thorough job of spraying is done, it should not be necessary to repeat, but under most conditions it will probably be found advantageous to give the weeds a second spraying two to three weeks after the first."

Jones and Evans report that seedling weeds appeared on the test plots the following year, indicating that either seeds remained dormant during the two seasons when the preliminary tests were made, or reinfestation occurred from the adjacent areas which were not killed out and allowed to go to seed.

"This means that spraying will be necessary for several years in order to completely eradicate the weeds from the area," the report concludes.

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Agricultural News Letter (Du Pont)
Vol. 15, No. 2 March-April, 1947

"AMMATE" KILLS PERSIMMON AND SASSAFRAS SPROUTS IN TEXAS

A solution made up of a gallon of water and two pounds of "Ammate" weed killer, properly applied, will kill 100 persimmon or sassafras sprouts, says Dr. P. A. Young, plant pathologist in charge of the Texas A. and M. Substation at Jacksonville.

"Over a great part of Eastern Texas, the persistence of persimmon and sassafras roots to sprout has cost farmers much in repeated grubbing through the years, with little permanent eradication resulting," Dr. Young says.

He says the solution of "Ammate", the active ingredient of which is ammonium sulfamate, or of sodium arsenite, was poured onto the stumps of the sprouts in the fall and winter immediately after cutting them off level with the ground.

"This treatment prevented reappearance of most of the sprouts the next year in the treated fields," he reports. Dr. Young prefers the "Ammate" because "it is not poisonous to livestock, while sodium arsenite is dangerous to livestock and dangerous for workmen to handle."

"Working together, two men can kill about 1,000 sprouts a day," Dr. Young says. "From 75 to 100 per cent of the sprouts are killed, depending on the care taken in applying the 'Ammate.' Any new sprouts that appear are likely to be delayed, and can be grubbed and destroyed with the 'Ammate' at small expense."

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"AMMATE" USED AGAINST OAK AND PERSIMMON BRUSH IN OKLAHOMA

"Ammate" weed killer defoliated oak and persimmon brush, killed all terminal shoots and much of the older wood in experiments reported by the Oklahoma Agricultural Experiment Station.

The Station's Bulletin B-295, in discussing these tests with ammonium sulfamate, the active ingredient in "Ammate", says that in a few cases, new leaves appeared on the lower trunks of the plants, and occasionally a few sickly sprouts appeared near the root crown.

"By careful spraying on the leaves of brush, little damage was done to the native grasses intermingled in a woody vegetation," it adds.

The bulletin also says that ammonium sulfamate appeared to be desirable for use on undercover in valuable timber land and orchards.

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Agricultural News Letter (Du Pont)
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2,4-D WEED KILLER EFFECTIVE AGAINST DODDER OR "LOVE VINE"

Dodder Is Parasite That Lives on Such Plants As Lespedeza

The field dodder (Cuscuta pentagona Engelm.) is an annual weed without a true root system that lives as a parasite on herbs, particularly Korean lespedeza and various members of the dandelion family, says Missouri Agricultural Experiment Station Bulletin 433, "Representative Weeds of Missouri," by W. B. Drew and C. A. Helm.

The bulletin explains that the following description of the field dodder applies reasonably well to most of the other dodders that grow in Missouri and many other states:

"Stem yellowish, smooth, threadlike, twining, attached firmly, by means of small penetrating suckers, to the stems of the parasitized plants.

"Leaves mere scales, very small, yellowish-brown.

"Flowers small, brownish-white, borne in clusters along the stems.

"Seed-pod shaped like a much-flattened sphere.

"Seed yellow to reddish-brown, about 1/16th in. long, the surface covered with minute pits, rounded on one side, flattened and ridges on the other, with a small circular, whitish spot at one end."

Dodder, a fine yellow parasitical annual, often called the "love vine," can be killed by 2,4-D weed killer.

Dodder comes up from seed and attaches itself to such plants as the Korean lespedeza and then gets all of its food and moisture from the host plant. It not only kills the lespedeza, but interferes with curing the crop when cut for hay.

"The spots of dodder in the lespedeza field should be thoroughly saturated with the 2,4-D spray," according to Tildon Easley, extension agronomist of the Arkansas College of Agriculture.

Continued on next page

While the 2,4-D will also kill the lespedeza in the sprayed areas, the loss will usually prove negligible because the dodder is generally confined to small areas scattered through the field. Alternative methods, such as burning straw or old crankcase oil that has been spread over the dodder-infested spots, also destroy the lespedeza. Cutting out and removing the vines from the field is not generally recommended because of the labor required and because pieces of the dodder left or dropped reattach themselves to the lespedeza and put out new growth.

Importance of Growing Dodder-Free Lespedeza

The importance of growing dodder-free lespedeza is indicated by the fact that "regulations prohibit sale of lespedeza seed containing more than 500 dodder seed per pound of lespedeza seed," Mr. Easley says. "Lespedeza seed containing more than 100 dodder seed per pound, if offered for sale, must be marked 'excessive noxious weeds.' To avoid heavy losses caused by trying to remove dodder seed from lespedeza seed, farmers who plan to harvest lespedeza seed are particularly urged to destroy the dodder in the field."

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EVERY STATE IN UNION REPRESENTED AMONG STOCKHOLDERS

E. I. du Pont de Nemours & Company, Inc., was owned by 87,619 holders of common and preferred stock as of December 31, 1946.

Including 73,523 holders of common stock and 18,271 holders of preferred, the total eliminates duplications of stockholders holding both classes of security. The fourth quarter figures compare with 87,622 for the third quarter of 1946, and 87,936 for the fourth quarter of 1945.

Every state in the union is represented among Du Pont shareholders. Approximately 37,000 are women.

FRUIT SPECIALIST SUGGESTS WAYS TO IMPROVE EFFICIENCY OF APPLE PICKERS

The average apple picker spends only about two-thirds of his working time plucking the fruit from the tree. Almost one out of every three hours is used in climbing up and down the ladder, walking to the box and back to the ladder, emptying the picking bucket, leveling the apples in the box, getting empty boxes, and in moving the ladder from tree to tree.

Prof. C. H. Zuroske, agricultural economist of Washington State College, has compiled the following breakdown of relative percentages of time needed for various tasks under the conditions studied:

Task or segment of job	Per cent of total time
Up ladder	5.1%
Picking	68.8
Down ladder	3.5
To box	3.3
Empty picking bucket	3.3
Level apples in box	1.1
Get empty box	1.8
To ladder	4.4
Move ladder	8.7
	100.0

Suggestions for reduction of the time consumed in the various tasks and for improving the efficiency of the overall job of picking, based on a study of these figures, are offered by A. C. Bobb, fruit specialist of the Connecticut Agricultural Extension Service, in a recent issue of "Storrs Horticultural Notes." A long-time program would include decreasing the height and elimination of crowding of trees. Points offered by Mr. Bobb for immediate consideration include "distribution and availability of orchard crates, low-platform orchard trucks or trailers, ladders and picking buckets in good repair (a missing ladder rung is annoying and time-consuming as well as dangerous), availability of drinking water and toilet facilities for pickers; and use of new types of equipment such as light-weight metal ladders and lighter and larger picking buckets."

Mr. Bobb also offers the following advice to help decrease the bruising of the fruit: "Many bruises can be stopped by careful supervision of pickers, by careful dumping of apples into the grader, and by use of corrugated liners in shipping boxes." He further points out that his suggestions can easily be applied, with necessary modifications, to other harvesting jobs.

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Agricultural News Letter (Du Pont)
Vol. 15, No. 2 March-April, 1947

DDT-SPRAYING PROGRAM PRACTICALLY ELIMINATES FLIES FROM RURAL SCHOOLS

A Missouri county home demonstration agent and a county agricultural agent, cooperating with the county nurse and superintendent of schools, have launched a DDT-spraying program for rural schools that promises to do much for the comfort and health of farm school boys and girls everywhere.

School Superintendent Finds Only One Fly In Autumn Canvass

"So successful was the project that, in all my visits to schools this fall, I saw one fly in one school," reports County Superintendent Foster Scotten of Sedalia, Pettis County, where the fly-killing campaign was conducted.

Early in the year, Alice M. Alexander, home demonstration agent, and Reba Gum, county nurse, sent a questionnaire about school screens to health leaders in all of the home demonstration clubs in Pettis County. The replies revealed that many schools had no screens and that none could be bought.

The two county workers, with the help of Mr. Scotten and County Agent J. U. Morris, then selected three scattered schools for DDT-spraying demonstrations.

School Directors From All Over County Observe Demonstrations

Thirty-eight school directors from all over the county observed Mr. Morris spray porches, inside and outside toilets, and sheds for horses, with sprays containing 50 per cent wettable DDT. The inside walls of the buildings, including cloakrooms and classrooms, were sprayed with DDT-oil sprays.

Especially Valuable Because of Screen Shortage

"The directors went back to their districts and sprayed their schools," Miss Alexander says. "Spraying with DDT was universally successful, is easily done, and undoubtedly is a preventive against flies. This is especially valuable in the face of the screen shortage."

Many Extension, school, and health workers in other counties throughout the country plan similar campaigns in 1947.

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Agricultural News Letter (Du Pont)
Vol. 15, No. 2 March-April, 1947

COUNTY AGENT ORGANIZES SUCCESSFUL COUNTYWIDE DDT-SPRAYING PROGRAM

The effectiveness of area insect control with DDT insecticide among livestock on farms and ranges was demonstrated in many sections of the country during the past year.

Regional campaigns were conducted with outstanding success in Florida, Kansas, Oklahoma, and other livestock-growing states. Countywide programs under the supervision of the county agricultural agents and cooperating agencies are also being reported in large numbers.

One such countywide series of demonstrations in which DDT was applied wherever 25 head of stock, mostly cattle, could be congregated was conducted by County Agent Jack Coleman of South Arkansas County, Arkansas. A total of nearly 25,000 animals received applications of the insect-killing chemical from one mobile unit within the limits of this one section of Arkansas County. Owners all said that "horn flies, greenhead barn flies, and mosquitoes all were eliminated," according to Mr. Coleman. He estimates that an additional 10,000 head of livestock were sprayed with hand and power sprayers by individual owners and by commercial operators. The spray consisted of 50% wettable powder and the concentration was a ½% solution.

"Some owners preferred to spray their livestock at their own convenience, and not have to wait for the truck to make its rounds," he explains.

Fifteen Demonstrations Conducted In Average Day

The county agent sent letters asking all farm owners in the county if they wanted their stock sprayed. He tabulated the requests, and notified interested growers when the truck would arrive. Barns, vacant implement sheds, corrals, fence corners, and barn lots were used as spraying centers. About 15 demonstrations were conducted in an average day.

Mobile Unit Sprays Stock at 121 Different Spraying Centers

Herds, concentrated at designated centers, were treated every four weeks following the first application in June. "As the farmers became informed on the value of DDT, more requests for the service came to my office," Mr. Coleman reports. "A portable unit belonging to the State Livestock and Sanitary Board sprayed increased numbers each time it made the rounds of the county. The first time 5,656 head of cattle were sprayed at 84 centers, the second time 6,789 head at 99 centers, and the third time 7,038 head at 121 centers."

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Only a small charge per head was made to cover expense of the spray truck, operator's time, and cost of DDT. The money went to the state veterinarian, whose department did the spraying.

Owners Greatly Pleased With Results

Mrs. Mamie Lumsden, DeWitt dairy operator, reported that her herd looked better and grazed more peacefully and quietly following the treatments. Regardless of the benefits in increased yields, she felt the spraying was worth the price just to have the cattle unmolested by insects.

Mr. Ernest Toland of Center gave the DDT credit for the best cattle and calves he ever had. He said they were fatter and in better condition than any he had previously grown.

Mr. Benjamin Lowe of Gillett declared his cattle put on more flesh and had a much slicker look following the treatments.

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COTTON FARMER REPORTS MAKING EXTRA THOUSAND DOLLARS FROM SIXTEEN ACRES BY SPENDING ONLY $2.40 FOR 2% "CERESAN" SEED DISINFECTANT

An Arkansas farmer, H. E. Lynch of near Clarendon, made an additional $1,000 from his 1946 cotton crop because he spent $2.40 for 2% "Ceresan" seed disinfectant to treat enough seed to plant 16 acres.

Mr. Lynch explained the results to County Agent A. C. Smith, as follows:

"I treated the cottonseed at a cost of 15 cents per acre for the seed disinfectant, and received a return therefrom of $62.50 per acre. During the winter months I made a hand-operated treating machine from an old oil drum according to directions supplied by the Agricultural Extension Service. Then I treated my planting seed with 2% 'Ceresan'. In spite of cold, wet weather during the planting season, I saved a stand of early cotton on 16 acres, which produced 21 bales.

"Untreated seed planted at the same time and under similar conditions had to be planted over. And then it produced 25 per cent less cotton per acre.

"The cotton and seed sold for $200 a bale or about $250 per acre. Treated seed on 16 acres gave an increased return of $1,000 over the untreated seed."

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"FERMATE", PROTECTIVE RATHER THAN CURATIVE FUNGICIDE, MUST BE APPLIED BEFORE PLANT-DISEASE INFECTION OCCURS

"Fermate" fungicide, which gives excellent control of blue mold and damping-off in tobacco seedbeds, also controls a number of other diseases on a variety of crops.

This new organic fungicide, based on ferric dimethyl dithiocarbamate, is a protective rather than a curative, and must therefore be applied before and not after disease infection occurs.

A Few Of Its Uses

Apples -- for control of scab, cedar apple rust, quince rust, apple blotch, black rot (frog-eye), Brooks fruit spot, and bitter rot. It reduces or avoids the chemical russeting caused by standard fungicides to certain varieties. (See results of Missouri tests reported on next page.) Also, for special use as a fungicide in apple sprays immediately preceding applications of summer oils or in sprays containing summer oils and oil-nicotine combinations.

Pears -- for control of pear scab.

Cherries -- for control of brown rot and leaf spot.

Beans -- for control of anthracnose.

Celery -- for control of early and late blight (leaf spots) in the field and damping-off and leaf spots in seedbeds.

Cranberries -- for control of fruit rots.

Tobacco -- for the preventive control of blue mold and damping-off in seedbeds.

Tomatoes -- for control of anthracnose fruit spot.

NOTE: While "Fermate" sprays or dusts should be applied so that new growth is thoroughly covered prior to and during infection periods, growers should consult their county agent or other local agricultural authority for advice, especially as to timing of applications and the proper spray combinations.

Agricultural News Letter (Du Pont)
Vol. 15, No. 2 March-April, 1947

MISSOURI EXPERIMENTS SHOW "FERMATE" CONTROLS NUMEROUS DISEASES OF HORTICULTURAL CROPS, INCLUDING SCAB AND CEDAR RUST ON APPLES

"Fermate" fungicide offers "a practical and effective means of controlling cedar rust on apples", says Missouri Experiment Station Bulletin 491.

The publication, entitled "Investigations for the Benefit of the Missouri Farmer", explains that the Missouri station "has continued the search for better and more desirable sprays and spraying methods for the control of diseases of horticultural crops".

It points out that Professor H. G. Swartwout of the station's horticultural staff "found that 'Fermate' gave 94 to 96 per cent control of cedar rust on the foliage of such rust-susceptible varieties of apples as Jonathan and Rome in comparison with 36 to 13 per cent control with sulfur sprays. Unsprayed trees showed an average of 10 to 18 lesions per leaf".

"Fermate" held cedar-rust-infected fruit to about 2 per cent on Jonathan, Rome Beauty, Golden Delicious and Winesap while sulfur-sprayed trees showed 7 per cent to 43 per cent affected fruits", according to a summary report in the quarterly research number, Vol. V, No. 2, of "Horticultural News" of the Missouri State Horticultural Society and Missouri College of Agriculture. The same publication reports that where "Fermate" was preceded by one application of liquid lime sulfur, as good control of apple scab has been obtained over a period of three years as with the regular sulfur program of one application of liquid lime sulfur followed by a microfine wettable sulfur.

Reduces Russeting Thus Improving Appearance and Keeping Quality

"Fermate" has given a "reduction in russeting when used with lead arsenate in years favorable for sulfur-lead arsenate russeting, thus resulting in fruit of superior appearance and better keeping quality," the report continues. It further points out that "these are important market qualities, and are worth obtaining with such dessert varieties as Jonathan and Golden Delicious".

Gives Good Control of Apple Blotch

"In 1944, 'Fermate' gave as good control of apple blotch on the fruit as did 4-6-100 Bordeaux", it adds. In 1945 it "held blotchy fruit to 1 per cent, while regularly sulfur-sprayed trees showed 91 per cent blotch-affected fruit".

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Leaf Spot and Brown Rot on Sour Cherries and Peach-Leaf Curl

For stone fruits the summary-report in "Horticultural News" states that "three years' tests at Columbia and two at Monett indicate that 'Fermate', 1½-100*, will give as good and in most cases better control of leaf spot than liquid lime sulfur." In practice "it is suggested that a preharvest program of 'Fermate' be followed by Bordeaux or some of the better low-soluble coppers after the fruit is harvested. 'Fermate' has given 100 per cent control of brown rot of the fruit compared with 32 per cent to 42 per cent of affected fruits on unsprayed trees". At 2-100 it "gave good control of peach-leaf curl. The trees in the same planting had 32.2 per cent of the leaves affected with peach-leaf curl".

Can Be Used on a Variety of Fruit Plants

"There was no apparent injury from 'Fermate', 1½-100, on apples, pears, cherries, several species of plums, apricots, concord grapes, raspberries, blackberries, and strawberries and very little on peaches".

Since "Fermate" is a protective rather than a curative fungicide, Prof. Swartwout emphasizes that thorough coverage especially in the tops of the trees with not-too-long an interval between sprays is important for satisfactory disease control.

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NEW INSECTICIDE, MIXED WITH SOIL, CONTROLS POTATO WIREWORMS

An effective new insecticidal control for the wireworm, a major pest in many potato-growing areas, has been reported by Dr. Douglas E. Greenwood, entomologist at the Connecticut Agricultural Experiment Station at New Haven.

A recent statement from the Station says field tests conducted by Dr. Greenwood during 1946 indicate that applications of hexachlorocyclohexane, one of the new organic insecticides, result in practical, effective wireworm control. Hexachlorocyclohexane is the active ingredient in Du Pont's new commercial product, "Lexone"-50 insecticide.

Broadcast Treatment Most Satisfactory

In the tests, the chemical was applied in four ways: broadcast, row treatment, application to the seed pieces, and through treated baits. Dr. Greenwood found that, in general, the broadcast treatment was the most satisfactory. Fields were first plowed and then disc-harrowed. Dilute

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* 1½ lbs. "Fermate" to 100 gallons of water.

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hexachlorocyclohexane dusts were applied with a grain drill, and the plots were again disc-harrowed once each way to mix together the soil and insecticide to a depth of 5 or 6 inches.

Results On Treated vs. Untreated Plots

"Applications varied from 0.65 pounds of the crude chemical (put on as 65 pounds of 1 per cent hexachlorocyclohexane dust per acre) to five pounds (100 pounds of 5 per cent dust). Two pounds of crude material (applied as 65 pounds of 3 per cent dust) resulted in excellent control. Only 9.3 per cent of the tubers showed any injury, and but 3.9 per cent of the sample failed to meet the requirements for U. S. Grade 1 potatoes. In a near-by check plot where no hexachlorocyclohexane was applied, 78.6 per cent of the tubers showed injury and 53.4 per cent failed to meet U. S. Grade 1 requirements," the report continues.

"With row treatments, the rows were opened and the dusts applied by means of a rotary-type hand duster. The seed pieces were dropped, and the rows covered by hand. All treatments containing at least 1.32 pounds per acre of crude material gave very good commercial control. However, a disadvantage of the row-type treatment is that the tubers tend, to some extent, to take up the taste of the chemical. This difficulty was not encountered in the broadcast treatments at the two-pound level."

Treatment of Seed Pieces and Baits Generally Unsatisfactory

"Treatment of seed pieces with hexachlorocyclohexane and the use of wheat baits treated with the material were generally unsatisfactory. While some reduction in injury was shown, control was not effective enough to be commercially practicable."

New Chemical Treatment "Inexpensive, Easy, and Effective."

Wireworms, long a major problem of Connecticut and other potato-growing areas, feed on the tubers in the ground, often riddling them until they are unfit for use. In other cases, the wireworm injury is only severe enough to keep the potatoes out of the U. S. Grade 1 class, with resultant cash losses to the farmer.

"The new chemical treatment seems to be an inexpensive, easy, and effective method of control," Dr. Greenwood concludes.

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Agricultural News Letter (Du Pont)
Vol. 15, No. 2 March-April, 1947

NEOPRENE PROTECTIVE CLOTHING AND EQUIPMENT FOR VETERINARIANS

More and more boots, overshoes, gloves, aprons, jackets, detachable sleeves and other protective garments made of neoprene-coated fabric, as well as tubes and similar professional equipment used by veterinarians, are being made of neoprene synthetic rubber.

Neoprene has all the desirable properties of rubber, such as tensile strength, resilience, abrasion resistance, and elasticity, so necessary in countless uses. In addition, veterinarians have found that neoprene articles resist the deteriorating effects of heat, sunlight, ozone, and aging, as well as of oil, gasoline, and many other chemicals and liquids that attack rubber. It has flame-retarding properties not possessed by any other elastic material, and is being used in a great variety of products. And one new use often suggests another.

Boots, Soles, and Heels

The Du Pont Company's Rubber Chemicals Division has published a number of interesting booklets on neoperne. One, called "Neoprene Chloroprene Rubber," says that workers in slaughter houses , oil fields, mines, and similar places have had difficulty in finding a boot that will not deteriorate from contact with oils, greases, acids, or fats. Now, however, veterinarians and others requiring such footwear are finding that boots made of neoprene provide a strong, comfortable, durable foot covering that meets all the needs for their particular work.

And, because they are tough, and resistant to abrasion and oil, neoprene soles and heels for shoes give longer life and increased safety.

Gloves

Neoprene gloves are particularly useful to veterinarians. Such hand coverings are available both with and without canvas reinforcement. Neoprene-covered canvas work gloves are comfortable and are exceptionally long-lived under rough service. Neoprene gloves without canvas backing are used to protect the hands against acids, solvents, corrosive chemicals, and the many liquids handled by veterinarians.

Aprons, Jackets, and Detachable Sleeves

Neoprene is a valuable material for aprons, jackets, and detachable sleeves. The Du Pont booklet says the manufacturers of these articles have made them available in a wider variety of styles, some of which are suitable for use by veterinarians.

Continued on next page

Proper Care of Equipment

Proper care and frequent disinfecting of clothing and equipment is of the greatest importance to eliminate any possibility of disease being transmitted from one animal to another by the veterinarian. Under the heading, "Are You A Carrier?", in the November, 1946, issue of "The North American Veterinarian," Vol. 27, No. 11, Dr. L. A. Dykstra, practicing veterinarian of Aurora, Illinois, and president of the Illinois State Veterinary Medical Association, points out that "farm clients are beginning to recognize and appreciate more and more the precautions their veterinarians take to avoid possibilities of carrying disease from one farm to another."

Adequate sanitary measures used by veterinarians include frequent use of effective chemical disinfectants and fumigants, many of which attack natural rubber, causing rapid deterioration. Because of neoprene's resistance to the action of chemicals, garments and other equipment made of neoprene last longer even when cleaned with standard proprietary disinfectants.

"Owners of livestock have been trained to avoid practices that might bring new disease on their premises, and rightly so," Dr. Dykstra says. "Veterinary practitioners are constantly visiting herds and flocks where all is not well -- that is our work. Besides the fact that veterinarians should wear washable clothing to facilitate frequent changing, there is one simple act that impresses the average farmer more than any other precaution we take in his behalf -- namely washing one's rubbers or boots before leaving the farm."

Boots Easily Disinfected

The Illinois veterinarian points out that there are few tasks in routine farm calls that do not necessitate the wearing of boots or rubbers.

"Boots are hot in summer -- of course they are -- but who can justify walking from a herd of pigs infected with hog cholera to one infected with swine erysipelas and on to one suffering from necrotic enteritis?", he asks. "And how about shoes well soaked with the amniotic fluid of a Brucella abortion in one herd worn directly into the manger of a Brucella-free herd, to pass the stomach-tube? Stockmen are watching and wondering, and again, rightly so. Thoroughly washing rubber footwear before leaving the premises avoids spreading disease."

Work of Veterinarian Often Not Alluring to Bystander

The Illinois veterinarian says the removal of bovine placenta and similar tasks of the doctor who treats livestock has never been particularly alluring to the bystander, and that while many articles have appeared on the subject of placenta removal, all the stress has been on the welfare of the patient and very little on the welfare and comfort of the operator. He adds:

Continued on next page

"Placenta removal, rectal palpation, as well as obstetrical operations, can be accomplished just as easily, much more safely, and certainly more pleasantly with rubber gloves and sleeves than by the bare-handed method. But you say you can't feel through rubber gloves? Practice takes care of that. The human surgeon and the small-animal surgeon will tell you that they do even the most delicate operations with rubber gloves, so surely we can remove placentas with them.

"Of real practical value to some individuals is the fact that the use of rubber gloves and sleeves avoids contact with certain proteins to which they are extremely sensitive. Many veterinarians have an extremely high sensitivity to the Brucella organism and suffer distressing temperature and systemic reactions after the removal of placentas from Brucella-positive cows. There have been instances where the typical headaches and temperature rises disappeared entirely when rubber gloves and sleeves were worn regularly for placenta removal."

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FINDERS OF CAUSE OF POTATO SEED DECAY OFFER RECOMMENDATIONS FOR CONTROL

Plant-disease specialists, who after four years of investigation, recently announced discovery of the cause of seed decay that gave losses to individual growers of from 10 to 100 per cent of their potato crops on Long Island, N. Y., simultaneously offered information on proper methods of chemical control.

The decay is caused by two species of fungi of the Fusarium group, which attack Irish Cobbler, Green Mountain, and Chippewa potatoes equally.

Dipping seed potatoes into a suspension of yellow oxide of mercury or a solution of "Semesan Bel" seed disinfectant gives effective control, according to Drs. H. S. Cunningham and Otto A. Reinking of the Agricultural Experiment Station at Geneva, N. Y. They say it is not advisable to treat the seed pieces after cutting.

Long Island Growers Spend 3½ Millions Annually for Seed

The New York plant pathologists point out that Long Island growers spend about three and a half million dollars every year for seed potatoes, with virtually all of their seed stock coming from northern New York, Maine, and Canada. They add:

"Complaints of poor stands due to decaying seed pieces led to a search for the cause, with the result that the Experiment Station scientists have traced the trouble to decay organisms present on the seed stocks from all of the chief seed sources supplying Long Island growers."

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How Spores Are Carried To Healthy Tubers

The investigators say the infection gains entrance through wounds, and is unable to penetrate the uninjured surface of a potato tuber or the properly cured cut surface of a seed piece.

"The spores are carried on soil adhering to healthy tubers and to bags or other containers in which the seed potatoes are stored," they say. "The organism causing seed decay may not necessarily be the one that causes storage rot of potatoes the same years."

Recommend Disinfecting Storage Containers

The writers recommend that containers in which seed potatoes or seed pieces are to be stored be disinfected by use of steam, by boiling, or by dipping in the solution used for treating the seed potatoes.

Disinfectant Controls Diseases of Irish and Sweet Potatoes

Du Pont plant pathologists point out that "Semesan Bel" has long been the standard seed disinfectant for potatoes, giving improved stands and yields of higher quality. It is used for treatment of Irish and sweet potatoes, also sweet-potato slips, to control surface seed-borne scab and Rhizoctonia on the Irish potatoes; and stem rot, black rot and scurf on sweet potatoes. "Semesan Bel" has long been recommended for the control of seed-piece decay.

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NITROGEN APPLIED TO SOIL INCREASES PROTEIN CONTENT OF CORN

Use of adequate amounts of nitrogen fertilizer not only gives higher yields of higher quality, but also increases the protein content of corn considerably.

That soil fertility affects the chemical composition of corn has been shown by results of a five-year study directed by Dr. D. M. Doty, Purdue University department of agricultural chemistry.

"This is particularly true of the protein content of the corn," Dr. Doty reports. "Corn grown on some very poor land near Lafayette, Ind., was found to contain 9.9 per cent protein. A heavy application of nitrogen fertilizer to this same soil raised the protein to 12.3 per cent."

Dr. Doty advises that further studies showed that applications of phosphoric acid and potash to soils deficient in these elements increased the yield of corn, but the potash content of the corn grain did not increase as a result of this treatment.

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CONTROL OF BACTERIAL BLIGHT OF SUGAR BEETS

Two of California's research plant pathologists announced recently that in their greenhouse experiments bacterial blight of sugar beets was controlled by treating the seed with New Improved "Ceresan" or "Arasan" seed disinfectants.

These two scientists, Dr. P. A. Ark and Dr. L. D. Leach, of the University of California, first noted the disease in beet-seed fields in northern California and southern Oregon. They say the leaf blades of diseased plants died rapidly, the disease "commonly beginning at the tip of the blade and gradually becoming systemic."

Later investigation of this trouble showed the disease was bacterial in nature.

Drs. Ark and Leach explain that, so far as they know, the causal organism "has not been found in the field attacking the beet root, and as none of the field beets with affected leaves had any root trouble, it is thought that the disease in the field is confined strictly to the leaf."

In their tests, results of which are reported in "Phytopathology," Vol. 36, No. 7, July, 1946, Drs. Ark and Leach found seedling infection was controlled in the greenhouse by treating field-contaminated seed with New Improved "Ceresan" (ethyl mercury phosphate) dust at the rate of ½ oz. per 100 lb. of seed, New Improved "Ceresan" dip (1-1,200), and "Arasan" (50 per cent tetramethyl thiuram disulfide) dust at the rate of 4 oz. per 100 lb. of seed. From these tests, as shown in table below, "it is apparent that the disease is seed borne," they conclude.

Treatment	Healthy plants	Diseased plants	
	Number	Number	Per Cent
No treatment	176	11	5.9
	194	12	2.4
New Improved "Ceresan" Dust	226	0	0
	381	0	0
Dip	270	0	0
	243	0	0
"Arasan", dust	259	0	0
	272	0	0

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